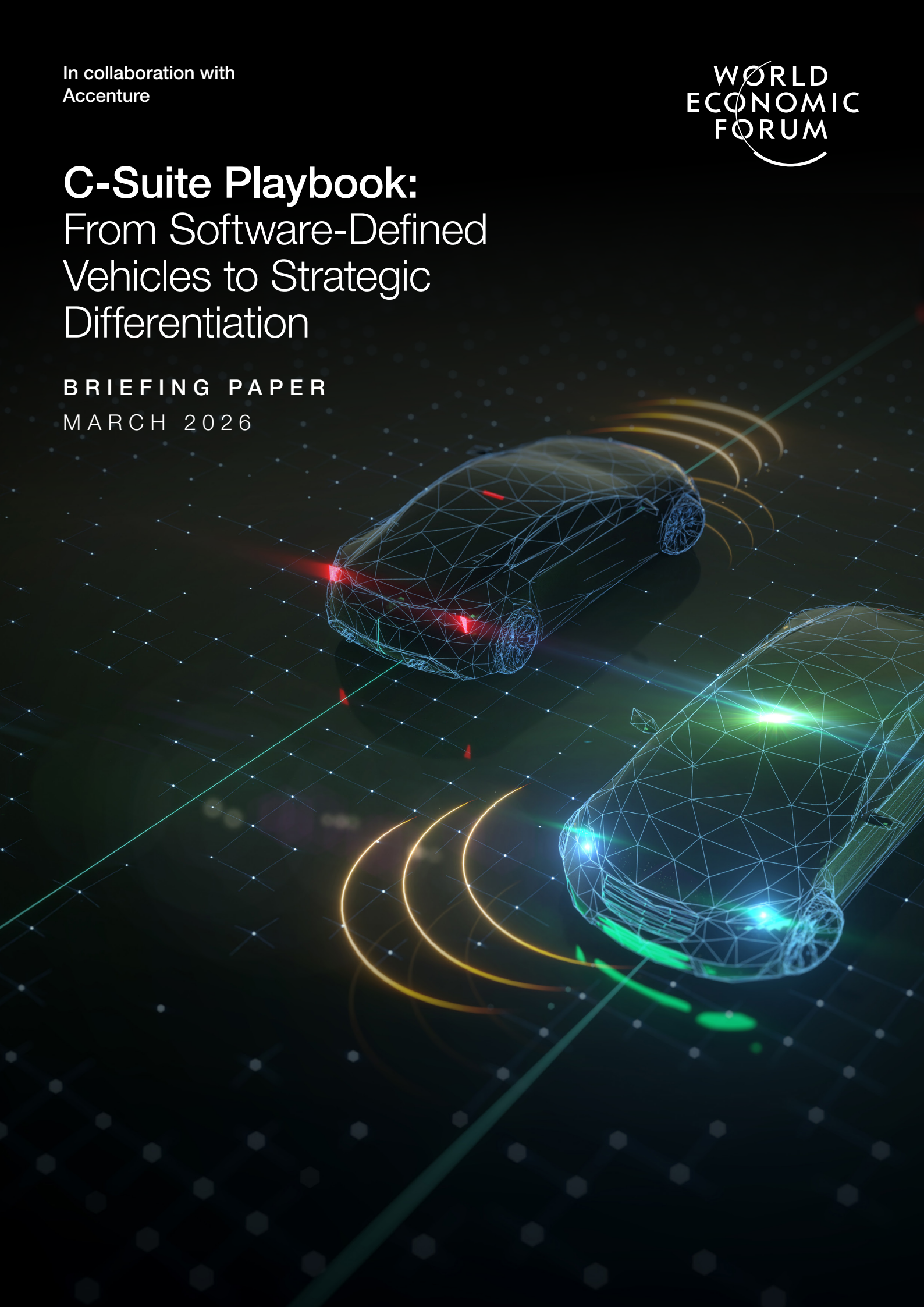
In collaboration with
Accenture

WORLD ECONOMIC FORUM

C-Suite Playbook: From Software-Defined Vehicles to Strategic Differentiation

BRIEFING PAPER

MARCH 2026



Images: Getty Images

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Introduction

The automotive industry is undergoing its most challenging transformation in over a century. The sector is redefining how it creates value, with competitiveness increasingly driven by software, data and continuous innovation. This transformation is captured in the concept of software-defined vehicles (SDVs). Some stakeholders have even begun to use the term "AI-defined vehicles" to reflect the growing role of artificial intelligence (AI). This paper, however, adopts SDV as the overarching term.

The World Economic Forum has supported this transformation with its Automotive in the Software-Driven Era community. Building on the insights from this expert community and two earlier Forum publications – Unlocking Safety and Innovation in Vehicle Software and Advancing Industry Collaboration in Vehicle Software – this briefing paper outlines the leadership actions required to achieve SDV maturity, and four strategic positioning archetypes for OEMs and their automotive ecosystem once SDV capabilities become a common industry baseline.

1 Leadership actions to achieve SDV maturity

Despite broad consensus on the importance of SDVs, industry discussions reveal a persistent tension in the SDV transformation. A survey of the expert community highlighted that while enhanced customer value is the top C-suite expectation for SDVs, progress is often constrained by diverse challenges, especially unclear returns on investment. Identifying the key C-suite levers to unlock SDV value is therefore critical.

To navigate the complexity of the SDV transformation, this briefing paper presents a structured framework (see Figure 1) built around the three transformation pillars: product, processes, and people and organization. Each pillar identifies four key enablers where change is required, translating strategic intent into concrete, C-suite-level actions. Each enabler is mapped to the main value it delivers, from greater efficiency and stronger ownership of core software capabilities to enhanced customer value. Designed as a common reference point for industry leaders, the framework helps C-suite executives prioritize actions, align strategic decisions and succeed in the SDV transformation.

FIGURE 1 **SDV transformation enablers**

Note: 1. Eclipse Foundation (2024) **2.** Accenture analysis **3.** Gartner (2020)

Source: World Economic Forum

PILLAR 1

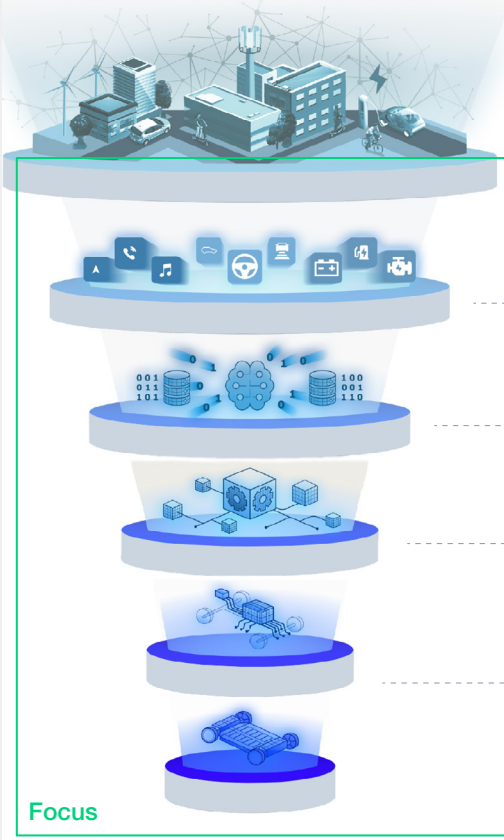
Product – Architecting the technical foundation for SDV

Advancing SDV maturity begins with a coherent and scalable technology stack. Today's fragmented, vehicle-specific architectures make it difficult to reuse software, deploy updates consistently and innovate at speed. Figure 2 illustrates the layers of the SDV stack and the transformation focus required at each level. For executives, these transformation focuses represent not just technical advancements, but a strategic foundation that directly influences speed, cost efficiency and long-term differentiation.

Four strategic enablers determine how effectively OEMs can innovate and how much strategic control they maintain:

1. **Unified vehicle architecture**: Shifting from vehicle-specific architectures to a shared vehicle and software architecture (e.g., one per brand, or even one per brand family) enables a common backbone across the portfolio. Standardized interfaces support vehicle-level differentiation while enabling software reuse at scale.
2. **Differentiation focus**: Customer experience and brand perception are increasingly defined at the application layer. The application layer should be the central focus for differentiation efforts.
3. **Advanced AI-silicon**: AI-intensive workloads elevate compute to a core vehicle capability, requiring early decisions on system-on-chip (SoC) architecture, performance headroom, abstraction layers and supplier dependencies. These decisions directly shape innovation speed, scalability and long-term SDV competitiveness.
4. **Open-source software strategy**: Open-source foundations reduce duplication and accelerate reuse in non-differentiating layers such as middleware, while proprietary control should be reserved for brand-defining capabilities.

FIGURE 2 **Software-defined vehicle layers and their transformation focus**

Six software-defined vehicle layers	Transformation focus	Enabler			
		Unified vehicle architecture	Differentiation focus	Advanced AI-silicon	Open-source software strategy
	**Smart mobility ecosystem** Position vehicles as active participants in energy, mobility and commerce ecosystems beyond the vehicle boundary				
	Applications Transition applications from user-triggered functions to controlled, AI-driven agents that proactively deliver context-aware vehicle services	✓	✓		✓
	Data platform Standardize vehicle data models and APIs to enable AI-first development and context-aware personalization at scale	✓			✓
	Vehicle software platform Standardize non-differentiating software layers to enable reuse, faster innovation, and cross-domain scalability	✓			✓
	Compute platform Consolidate vehicle compute into high-performance system-on-chips (SoCs) designed for AI-intensive, multi-domain workloads	✓		✓	
	Vehicle platform Decouple hardware and software to make core vehicle functions software-defined and enable modular, reusable vehicle architectures	✓			
Focus					

Source: Adapted from World Economic Forum (2023), *Unlocking Safety and Innovation in Vehicle Software*

Table 1 further details the strategic enablers and considerations required from the C-suite to establish an SDV tech stack and architecture foundation:

TABLE 1 **Recommendations and key considerations for pillar 1: Product**

Enabler	Recommendation	**Checklist:** Key considerations for the C-suite
Unified vehicle architecture 	Create and enforce a unified electrical/electronic (E/E) architecture and establish one central software platform with standardized interfaces	– **Run one E/E architecture** across model lines to avoid parallel stacks and unlock maximized scale and modularity – **Design one central vehicle software platform with standardized interfaces** to enable lifecycle updates, cross-domain software reuse and hardware independence – **Appoint platform architecture leadership** with a mandate to enforce the central blueprint
Differentiation focus 	Focus engineering on customer-facing innovation, not on rebuilding non-differentiating components	– **Focus R&D budgets on capabilities** that create user benefit, reinforce brand promise and foster strategic control – **Enforce systematic reuse** of non-differentiating, commodity components – **Measure whether differentiation investments translate** into real customer adoption and value
Advanced AI-silicon 	Shape system-on-chip (SoC) strategy as a long-term SDV capability lever to support scalable, portable, and real-time in-vehicle AI performance	– **Treat SoC choice** as a strategic lever with performance buffers for future unknown features – **Prepare SoC for advanced Edge AI capabilities** with real-time performance – **Ensure portability of SDV functions via abstraction layers** and build a multi-sourcing strategy
Open-source software strategy 	Adopt open-source software (OSS) as a shared foundation while shaping critical domains through active participation	– **Apply an OSS-first approach** for non-differentiating software layers – **Shape OSS actively** by placing engineers as core committers in selected domains – **Choose maintenance models** (shared funding vs commercial support vs in-house maintainers)

PILLAR 2

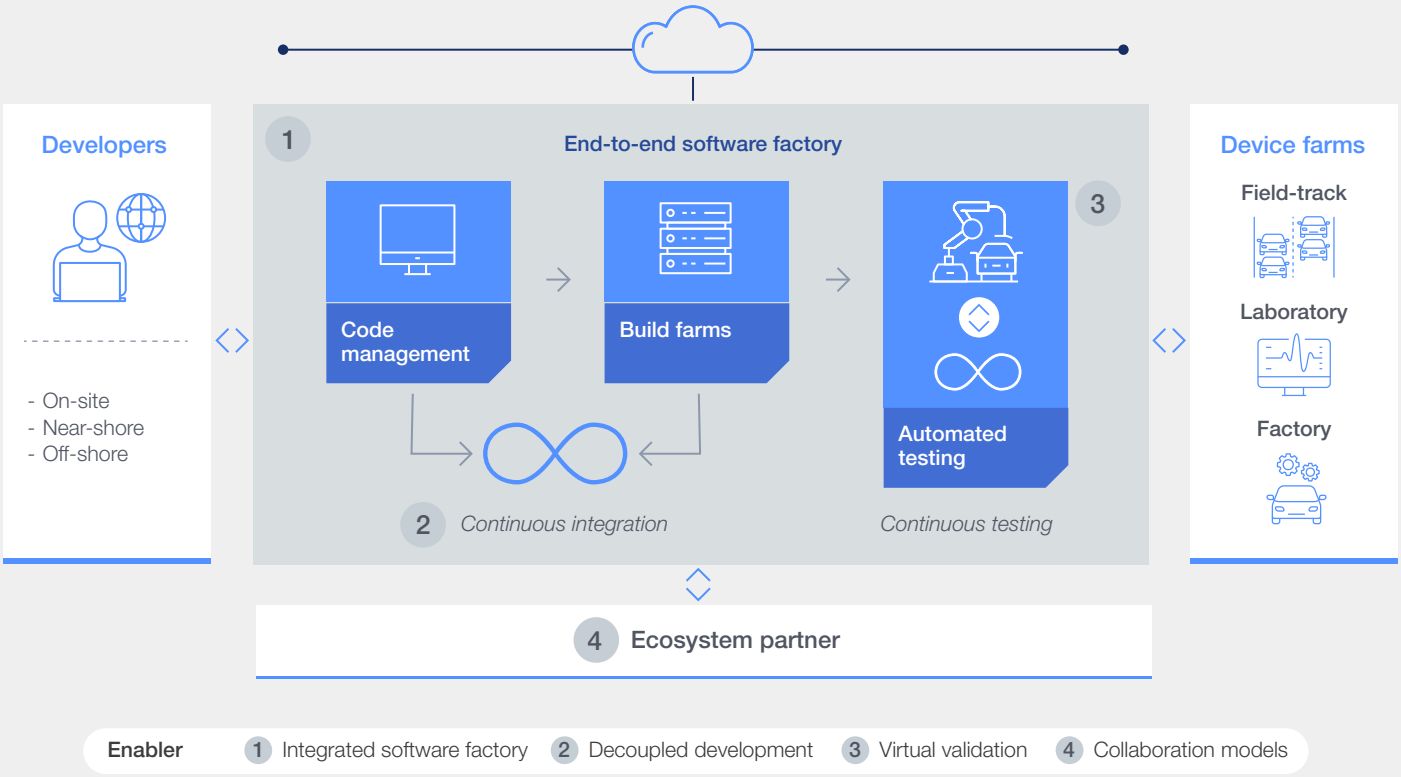
Processes – Operating at software speed

SDVs require processes that operate at software speed. Traditional, SOP-driven (start-of-production-driven) vehicle development models cannot support the pace, iteration and flexibility that modern software demands. This shift demands software development that is no longer constrained by hardware lifecycles and can scale across increasingly complex, multi-partner ecosystems.

Figure 3 illustrates the SDV target process model, based on an end-to-end software factory with continuous integration and testing loops. The process builds on four strategic enablers:

1. An **integrated software factory** brings development, build and testing into a single, cloud-enabled pipeline that spans the full software lifecycle. This enables faster iteration, continuous integration and consistent software quality across vehicle lines.
2. **Decoupled software development** from hardware milestones allows software to evolve on its own cadence, while integration points ensure architectural coherence. Continuous integration and testing reduce late-stage surprises and accelerate delivery across domains.
3. **Virtual validation** is embedded early in the process, leveraging cloud-based simulation and automated testing to reduce reliance on physical prototypes and accelerate feedback cycles (lowering cost and improving development throughput, a critical lever for achieving software speed).
4. **Integrated ecosystem collaboration**, embedding partners into shared toolchains and workflows to enable co-creation across OEMs, suppliers and technology partners, while maintaining consistency and governance across the SDV stack.

FIGURE 3 | **End-to-end software factory**



Source: Accenture

Table 2 below outlines the strategic enablers and C-suite considerations required to establish SDV-ready development processes that operate at software speed.

TABLE 2 **Recommendations and key considerations for pillar 2: Processes**

Enabler	Recommendation	**Checklist:** Key considerations for the C-suite
Integrated software factory	Set up an integrated software pipeline that connects development, testing and deployment in a continuous, AI-enabled workflow	– Mandate the use of industry-standard/open-source development tools, wherever possible – Consolidate and unify integration standards across departments and suppliers to enable end-to-end workflows – Commit to an AI-first paradigm and scale proven use cases
Decoupled development	Decouple software and hardware development via interface-first governance and hardware-independent cadences	– Decouple software release cadence from vehicle and hardware milestones to ensure development independence – Mandate an interface-first software development process with teams building exclusively against stable, hardware-independent interfaces – Align hardware and software roadmaps at defined integration points (e.g., new SoC generation)
Virtual validation	Adopt a virtual-first validation approach to accelerate testing cycles and reduce reliance on physical prototypes	– Make virtual-first the default strategy for development and testing processes, with physical validation reserved for clearly justified exceptions – Set targets for simulation coverage and quantify cost and time-to-market impact – Prioritize sustained investment in virtualization infrastructure as long-term strategic asset
Collaboration models	Foster horizontal ecosystem partnerships that enable joint SDV development while preserving strategic control	– Switch from vertically tiered supplier models to horizontal partnerships, enabling joint development across SDV layers – Leverage hyperscalers strategically to access scalable compute, data and AI platforms – Define sovereignty principles to determine which assets, data and decisions should remain under in-house control

PILLAR 3

People and organization – Building the SDV operating model

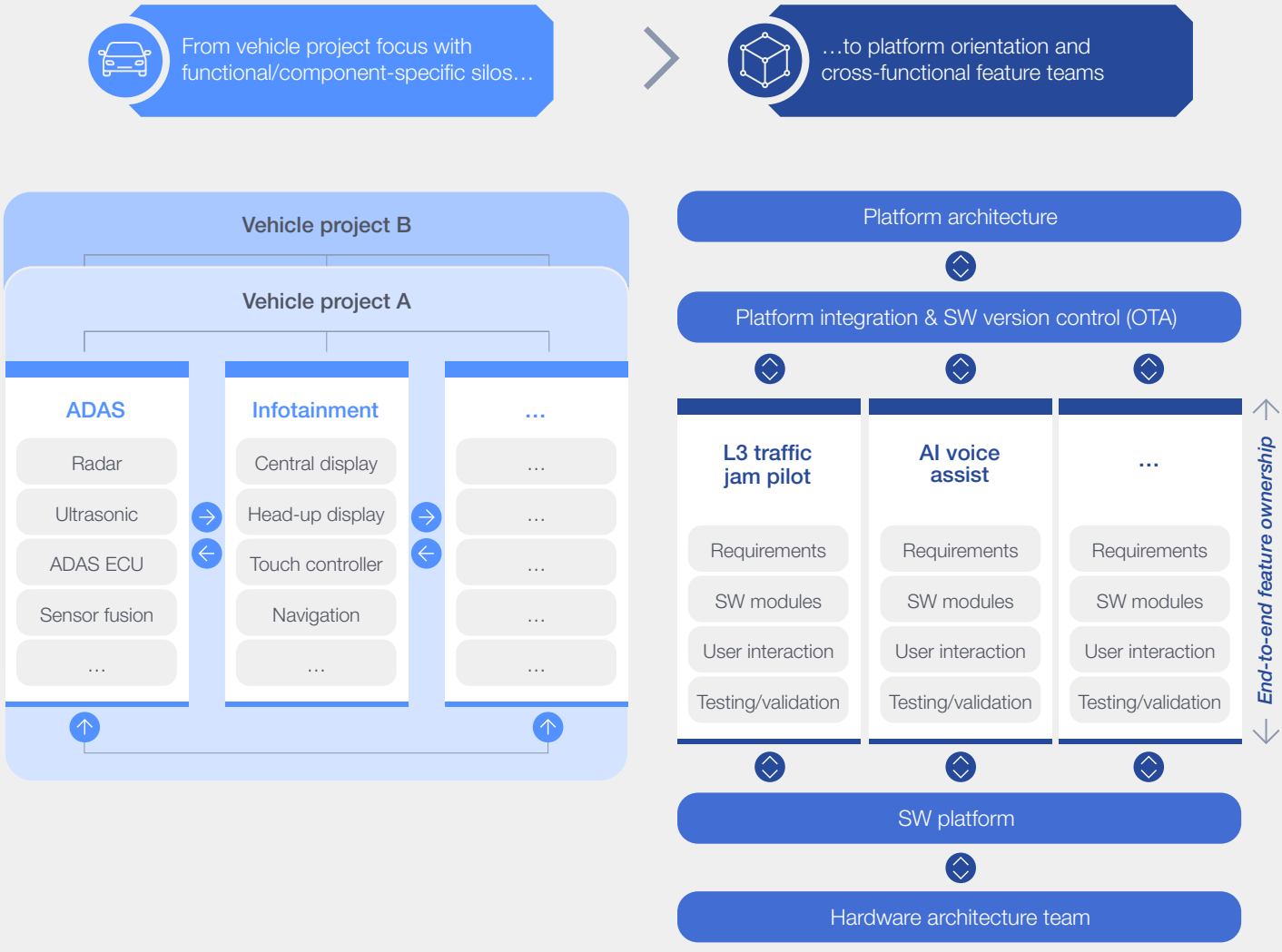
Implementing the SDV operating model requires more than structural change. It demands clear accountability, empowered product ownership and incentives that reinforce lifecycle responsibility and platform-aligned decisions. Yet many OEMs continue to rely on hardware-oriented, project-based structures that slow iteration and diffuse accountability for software-enabled functionality.

Figure 4 illustrates the shift towards a **simplified organization** built around cross-functional teams that own customer-facing functionality end-to-end. By reducing handovers and clarifying ownership, this model enables faster decision-making and accelerates delivery.

Crucially, delivery is anchored in a **lifecycle mindset**, replacing SOP-driven development cycles with continuous feature evolution. This allows over-the-air updates to be developed, validated and deployed continuously across the fleet.

However, organizational and process changes alone are insufficient. Sustained success also depends on access to strong **software expertise** that allows OEMs to retain strategic control over critical parts of the software stack. Attracting and retaining such talent, in turn, requires the development of a compelling **software culture** – one that effectively bridges the traditions of automotive engineering with the practices and mindsets of software-native organizations.

FIGURE 4 **Changes in organizational structure for SDV**



Source: World Economic Forum

Table 3 outlines the key enablers and the leadership actions required to build a software-ready organization, capable of delivering on the SDV ambition.

TABLE 3 **Recommendations and key considerations for pillar 3: People and organization**

Enabler	Recommendation	**Checklist:** Key considerations for the C-suite
Simplified organization	Reduce organizational complexity, restructuring departments from domain-focus to platform and feature focus	– **Shift accountability from vehicle programs to enduring software platforms** with a clear decision mandate and lifecycle ownership – **Break domain silos and establish feature-focused teams** with end-to-end accountability – **Increase decision speed** by reducing governance layers and empowering product owners on priorities and budgets
Lifecycle mindset	Treat vehicles as living software systems that evolve and generate customer value continuously, not tied to hardware milestones	– **Switch from SOP focus to continuous focus**, thinking not in single vehicles but in fleets – **Shift steering to lifecycle value KPIs** (e.g., user activation) and anchor these KPIs in leadership performance – **Give software the same visibility and recognition** as vehicle launches
Software expertise	Build and retain in-house software excellence, keeping the ability to conceptualize, control and integrate the software core	– **Bring in software talent** and make retaining them a top priority to preserve system and platform knowledge – **Establish a software architecture authority** with senior leaders holding binding decision power over core elements and tech choices – **Build key in-house capabilities on concepts, integration and specification** to retain a certain level of control authority
Software culture	Create a culture that attracts, integrates and retains software talent while harmonizing tech and OEM ways of working	– **Build software-driven career paths** with competitive compensation bands and progression criteria – **Create a blended OEM–tech culture** with shared values and mixed teams that learn from each other – **Link retention to value creation** with long-term incentives tied to software outcomes (e.g., % of fleet moved to a single software platform)

2 Strategic outlook: Moving beyond SDV maturity

While achieving SDV maturity is a current priority for OEMs and their ecosystems – and increasingly a prerequisite for remaining competitive – it does not represent the end state. Over time, SDV capabilities are expected to shift from a source of differentiation to a baseline requirement. This transition is unfolding as the number of OEMs increases and manufacturing capacity continues to expand in what was once a highly concentrated industry. At the same time, the global vehicle market is approaching saturation, after which new vehicle sales are expected to enter a period of structural decline.

In this context, the automotive industry is being pushed to look beyond unit volumes towards lifetime value, deeper customer engagement and adjacent revenue pools. Early signs of this evolution are already visible in China, where SDV building blocks are scaling rapidly, and competitive differentiation is increasingly shifting toward value-added services, ecosystem integration and portfolio breadth.

Four strategic paths for future positioning

Against this backdrop, automotive players are increasingly required to make explicit strategic choices about where to position themselves. Figure 5 structures these choices along two dimensions: a vertical axis, reflecting the degree to which players move towards service-oriented, lifecycle-based value creation along the transportation system; and a horizontal axis, reflecting diversification into adjacent motion and robotics products.

Taken together, these dimensions give rise to four broad archetypes: highly specialized vehicle maker, automotive service innovator, motion technology manufacturer, and product and service ecosystem player.

1. **Highly specialized vehicle maker**: Vehicle development and manufacturing remain the primary sources of value. This may involve focusing on specific segments, such as traditional luxury vehicles, or evolving towards a role as system integrators and large-scale assemblers serving autonomous mobility providers rather than individual consumers. While this path limits exposure to execution risks beyond the vehicle, it also constrains participation in emerging value pools outside vehicle sales.

2. **Automotive service innovator:** Value creation expands through vertical integration into transportation-related services, including software-enabled features, lifecycle monetization of privately owned vehicles and fleet operations. While historically challenging for many OEMs, advances in AI-enabled functionality and shifting market dynamics are increasing the relevance of this option. It requires capabilities in digital product development, customer engagement and service operations beyond traditional automotive strengths.

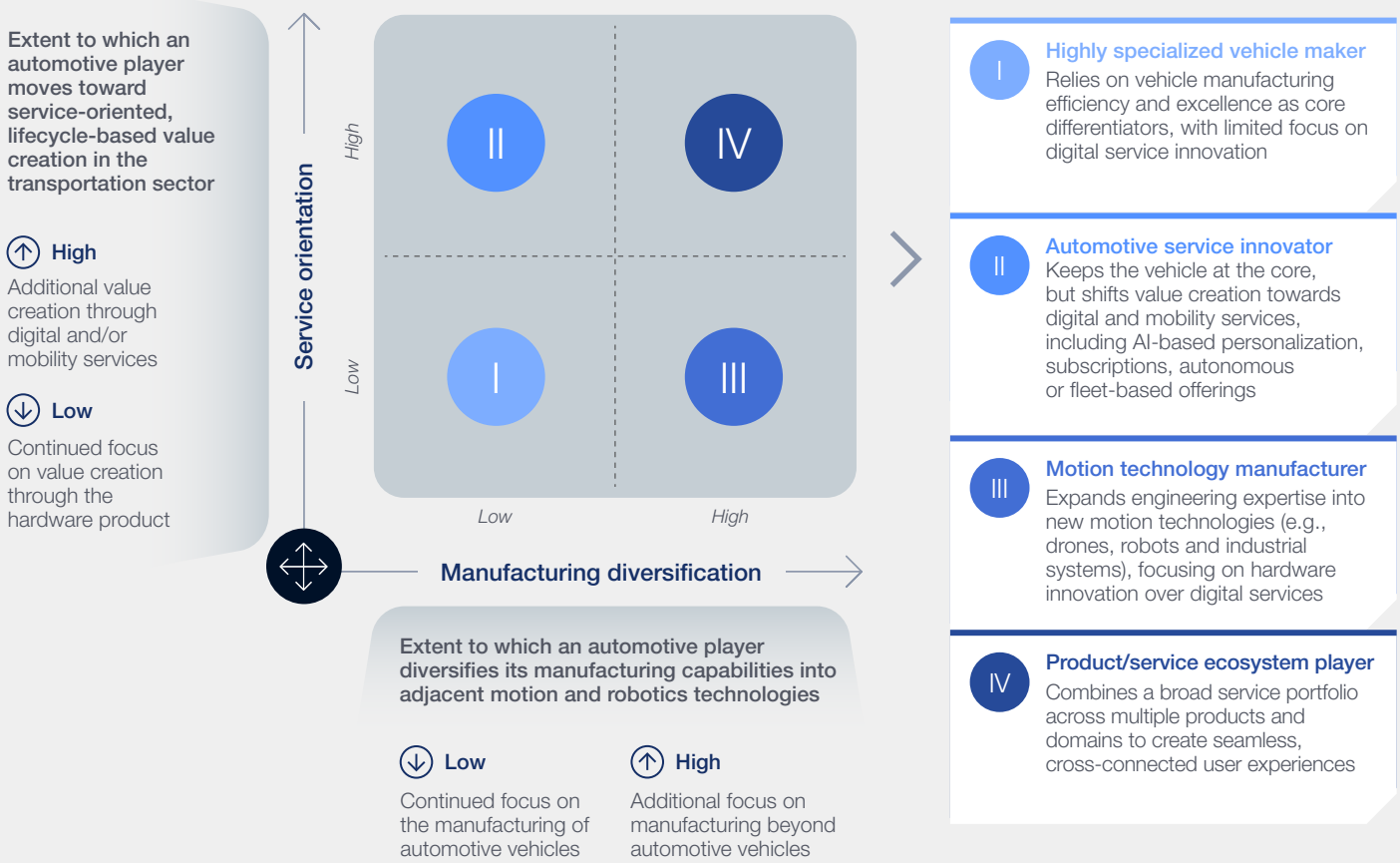
3. **Motion technology manufacturer:** This positioning reflects horizontal diversification into adjacent motion and automation domains, such as drones or industrial and service robots. Automotive OEMs can draw on strengths in safety-critical engineering, industrialization at scale and regulatory compliance. At the same time, differences in safety regimes, development cycles, and market dynamics limit the direct transferability of automotive capabilities.

4. **Product and service ecosystem player:** A smaller set of players may choose to pursue both dimensions simultaneously, expanding into services while also broadening the product portfolio beyond vehicles. This approach offers the possibility of broader value participation, but also entails significant complexity, including the need to coordinate across ecosystems, integrate products and services across multiple layers, and competition with incumbent technology platforms that already hold structural advantages.

These strategic positioning questions extend to the automotive supplier ecosystem, where SDV adoption is already reshaping roles and relationships. As software-centric architectures gain importance, suppliers are increasingly moving beyond component-based delivery towards platforms, software and lifecycle contributions, with some also exploring diversification into adjacent robotics industries.

There is no single pathway that will apply uniformly across the industry. Outcomes will depend on how effectively automotive-specific strengths – such as safety-critical system engineering, complex product homologation and large-scale automated production – can be combined with external capabilities and partnerships. The archetype framework underscores the importance of making explicit, long-term choices about scope, capabilities and ecosystem roles, and to do so in a time when global uncertainty and short-term pressures continue to complicate strategic decision-making.

FIGURE 5 **Strategic positioning archetypes for automotive players**



Source: World Economic Forum

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